# Peer review Group 4

immediate

April 15, 2023

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## 1 HW1 of group 1

First of all, it's great to present both the problems and the solutions. It's really convenient for the readers to follow up.

HW1.1 The proofs are correct and easy to follow. Nice work.

HW1.2 The proofs are correct and easy to follow. Nice work.

HW1.3 The definition of convergence rate is well-defined with some figures to help illustrate the mathematical formula. Besides, it additionally provides two proofs for the convergence rate of gradient descent for convex smooth functions and strongly convex smooth functions. Well done.

HW1.4 See our GITHUB page.

## 2 HW2 of group 2

Also, it's worth mentioning that the problems with the solutions are presented, which is really convenient for the readers to follow up.

HW2.1 In part (a), assuming that the feasible set of the decision $w$ is bounded, then the function is Lipschitz continuous and their result is correct. In part (b), they first prove the smooth property of the function $f_i$, and then $f$. The results are correct and easy to follow. The results in part (c) are also correct. Nice work!

HW2.2 The results are correct and easy to follow. Nice work.

HW2.3 First of all, whether the function is smooth is not mentioned in the question, which, however, is necessary for the subsequent analysis. Assuming the smooth condition, their results are correct. It would be better if the detailed proof is also provided: "we use the approach in references and look at". Otherwise, everything is fine.

## 3 HW3 of group 3

HW3.1 In their proof, some properties of conjugate functions are directly used without detailed proof. But the method I think is correct.

HW3.2 See our GITHUB page.

HW3.3 I am not sure if the designed algorithms are correct. Based on the designed algorithms, the claims about communication costs and convergence rate make sense.

## 4 CA1 of group 1

See our GITHUB page.

# 5 CA2 of group 2

MATLAB and Python version makes it confusing. ipynb file seems fine.

# 6 CA3 of group 3

I think it's a good job.
Two datasets are considered.
Codes are clearly written and correct.
All the algorithms are correctly designed and coded.
The simulation results of all the algorithms illustrate the advantages of all the algorithms.
The only drawback is to forget to compare the convergence time of all the algorithms (the x-axis is about the running time).